

ABSTRACT OF THE DISCLOSURE

Novel DNA sequence determination method and DNA sequencer system providing a sequencing speed 10^3 to 10^4 times faster than the current DNA sequencing speed (10^5 bases per day with a lane at maximum) of the existing DNA sequencer based on electrophoresis. The method includes the step of discriminating base-specific labels of heavy elements using a magnified image of elongated single-chain DNA or RNA produced by a transmission electron microscope (TEM). The DNA sequencer system uses this method. The invention provides a DNA sequencing speed that is higher than the existing speed by 3 or 4 orders of magnitude.